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REMARKS

A telephonic interview with the Examiner is respectfully requested in order to expedite the prosecution of this case. Please contact the undersigned after reviewing this response. A telephone number is provided below.

Claim 7, 11, 15, 18, 20, 21 and 28 have been amended. Claim 25 has been cancelled. Claims 30-38 have been added. Thus, claims 2-24 and 26-38 are pending in the application. Reconsideration of the application is respectfully requested based on the following remarks.

Claim Rejections – 35 U.S.C. § 102

Claims 2, 4, 9, 11-15, 17-20 and 29 have been rejected under 35 U.S.C § 102(e) as being anticipated by *Bluck* (6,203,862).

In contrast to *Bluck*, claim 2 (and its dependents) specifically require, "...continuously switching between the step of outputting the plasma forming component into the first processing zone and the step of outputting the plasma forming component into the second processing zone so as to effect the concentration of the plasma forming component between the first and second processing zones while continuously generating or sustaining a single plasma within the first and second processing zones inside the process chamber." While *Bluck* may disclose time multiplexing, he does not teach or suggest effecting the concentration of energy between two locations and further effecting the concentration of energy while continuously generating or sustaining a single plasma within the process chamber. In *Bluck*, the anodes 30 and 40 do not work together to form a single plasma but rather two distinct plasmas in the vicinity of anodes 30 and 40. Each plasma is used to perform a separate processing step. In fact, *Bluck* teaches that the purpose of time multiplexing is to create isolated plasmas. As shown in Fig. 1 of *Bluck*, the plasmas will be separated by a substrate disposed therebetween. Furthermore, *Bluck* states, "...Synchronized, or time multiplexed operation eliminates the need for complex shielding or grids to electrically isolate one plasma from the other...(Col. 4, lines 30-33)." As implied therein, time multiplexed operations electrically isolate one plasma from the other. This appears to be true whether the plasmas are on opposite or the same side of the substrate. In contrast, claim 1 refers to a single plasma. Accordingly, the rejection is unsupported by the art and should be withdrawn.

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Also in contrast to *Bluck*, claim 2 (and its dependents) specifically requires, "... the plasma forming component being outputted into the first processing zone from a peripheral location of the process chamber...the plasma forming component being outputted into the second processing zone from a peripheral location of the process chamber..." In *Bluck*, the ion sources 20 and 22 including anodes 30 and 40 are enclosed internally of the processing chamber 10. See for example Fig. 1 which shows ion sources 20 and 22 disposed inside the periphery of the processing chamber. Thus, the ion sources 20 and 22 output internally rather than peripherally as indicated in the claim. Accordingly, the rejection is unsupported by the art and should be withdrawn.

In contrast to *Bluck*, claim 15 (and its dependents) specifically requires, "...alternately distributing the received plasma forming component between two different regions of the process chamber so as to effect the concentration of the plasma forming component in the different regions of the process chamber..." *Bluck* is completely silent to effecting the concentration of energy at different regions. Therefore, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Bluck*, claim 15 (and its dependents) specifically requires, "...the plasma forming component that is alternately distributed to the two different regions helping continuously form a plasma within the process chamber during a single processing event associated with a work piece." In *Bluck*, the plasmas are used for separate processing events. For example, processing one side then the other. Furthermore, as indicated in Col. 2 lines 23-26, the plasmas are used to form multilayer depositions, which implies multi processing tasks. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Although the rejections to the dependent claims should be withdrawn for at least the reasons as above, it should be noted that they offer additional language that is unsupported by the art. For example:

In contrast to *Bluck*, claims 13 and 17 specifically require, "...wherein the plasma forming component is gas." While *Bluck* may disclose energizing first and second anodes in a time multiplexed manner, *Bluck* does not teach or suggest outputting a gas in a time

multiplexed manner. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Bluck*, claim 19 specifically requires, "...alternately distributing the received second plasma forming component between two different regions of the process chamber so as to effect the concentration of the second plasma forming component in the different regions of the process chamber while generating or sustaining a plasma within the process chamber." *Bluck* is completely silent to alternately distributing a first plasma forming component in addition to alternately distributing a second plasma forming component. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Bluck*, claim 20 specifically requires, "...wherein the first plasma forming component is gas and the second plasma forming component is energy. *Bluck* is completely silent to time multiplexing two different plasma forming components. As mentioned above, *Bluck* does not teach or suggest alternately distributing the output of gas. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim Rejections – 35 U.S.C. § 103

Claims 8, 16, 21 and 25-27 have been rejected under 35 U.S.C § 103(a) as being unpatentable over *Bluck* in view of *Suzuki* (5,522,934).

In contrast to both references, claim 21 (and its dependents) specifically requires, "...via time multiplexing, selectively switching the delivery of the plasma forming components back and forth between a first delivery condition where the plasma forming components are only delivered to an inner region of the process chamber, and a second delivery condition where the plasma forming components are only delivered to an outer region of the process chamber ..." *Bluck* does not disclose energizing inner and outer anodes in a time multiplexed manner, and while *Suzuki* may disclose shorter and longer nozzles he does not teach or suggest time multiplexing the gas distribution out of the nozzles. In *Suzuki*, the gas appears to be always distributed through the nozzles. See for example, Col. 5, lines 36-52, particularly, "...a process gas is supplied to these nozzles at once...". Furthermore, neither reference gives any motivation to combine with the other. Again, it appears that the

Examiner has used hindsight reconstruction to make the rejection. Accordingly the rejection is unsupported by the art and should be withdrawn.

In contrast to both references, claim 21 (and its dependents) specifically requires, "...wherein the plasma forming components are peripherally outputted into the process chamber..." Both references include internally located anodes and pipes. Accordingly the rejection is unsupported by the art and should be withdrawn.

With regards to claims 8 and 16, *Suzuki* does not overcome the deficiencies of *Bluck*. Neither reference teaches or suggests the limitations required by the independent claims 2 and 15 from which these claims depend (see above). *Suzuki* does not disclose time multiplexing let alone time multiplexing between center and outer regions. Accordingly the rejection is unsupported by the art and should be withdrawn.

It should be emphasized that it is not at all obvious how one would modify *Bluck* to create a central zone and an outer zone. It is not as simple as stating that the anodes could be arranged this way. How would they be physically structured to do so. There are complications that would need to be addressed.

Although the rejections to the dependent claims should be withdrawn for at least the reasons as above, it should be noted that they offer additional language that is unsupported by the art.

Claims 2-9, 12-17, 19 and 22-24 have been rejected under 35 U.S.C § 103(a) as being unpatentable over *Li* (6009830).

Li teaches injecting a chemically inactive carrier gas from a gas shower head and an etchant gas from one or more lower ports located below the shower head at the same time. No where does *Li* disclose time multiplexing or time modulation where the same gas flow is switched on at a first location and switched off at a second location (and vice versa). That is, *Li* is completely silent to "... continuously switching between ...outputting the plasma forming component into the first processing zone of the process chamber without outputting the plasma forming component into the second processing zone of the process chamber; and outputting the plasma forming component into the second processing zone of the process

chamber without outputting the plasma forming component into the first processing zone of the process chamber, " as required by claim 2 (and its dependents). Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Li*, claim 15 (and its dependents) specifically requires, "...alternately distributing the received plasma forming component between two different regions of the process chamber..." Again, *Li* is completely silent to time multiplexing such as continuously alternating a gas flow between two locations. *Li* also provides no motivation to perform such a routine as *Li* only teaches supplying a first gas to a bottom gas feed and a second gas to a top gas feed. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Although the rejections to the dependent claims should be withdrawn for at least the reasons as above, it should be noted that they offer additional language that is unsupported by the art.

As indicated by the Examiner, *Li* discloses balancing of the species distribution around the chamber and supplying any gas combination to either gas feed (Col. 6, lines 42-47 and Col. 5 lines 10-18). This however does not teach or suggest supplying a gas to different gas feeds and turning the gas flow to each gas feed on and off in a time multiplexed manner. In all the examples given by *Li*, gas flow is occurring simultaneously at both gas feeds and at the very least is always occurring in one gas feed during processing. This is NOT time multiplexing. *Li* simply does not show any examples where one is off while the other is on and further alternately switching the same flow of gas between two gas feeds.

All that *Li* says is that any gas combination can be supplied to either feed. This in of itself takes it further from the present invention (which teaches that substantially the same flow of gas is delivered to different ports). It appears that in all of the examples of *Li*, an etchant source gas is supplied to one gas feed and a carrier gas is supplied to another gas feed. Thus, *Li* goes in a completely different direction. See also Col. 6 lines 41-42, which states differential use of the differently located ports.

Again, it should be emphasized that in none of the examples and further in any of the experimental data, does *Li* ever contemplate zero flow with either of these gases. In the

experimental data, it appears that the minimum flow for Ar is about 150 sccm as shown in Figs. 4 and 5, and Li further states that the flow of C₄F₈ is fixed to 10 sccm.

Moreover, it should be emphasized that the balancing referred to by the Examiner is enabled by different located ports not the sequence of gas flow between these ports. As stated by Li, "...differently located ports enables the balancing of species...(Col. 6, lines 42-43)."

In summary, there is simply no teaching or suggestion that one should use time multiplexing out of countless other possibilities. And as ruled in *In re Herschler* 591 F.2d 693, 200 USPQ 711 (CCPA 1979), a prima facie case of obviousness fails when the prior art does not provide any impetus to do what the inventor had done. The only suggestion for the claimed combination comes from the applicants own specific. And the Federal Circuit has repeatedly warned against using the applicant's disclosure as a blueprint to reconstruct the claimed invention out of isolated teachings in the prior art. See, e.g., *Grain Processing Corp. v. American Maize products*, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988).

Claims 11 and 18-20 have been rejected under 35 U.S.C § 103(a) as being unpatentable over *Li* in view of *Shan* (6113731).

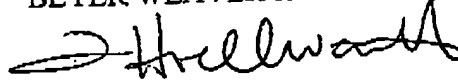
Shan does not overcome the deficiencies of *Li*. Both references fail to teach or suggest time multiplexing as embodied in the independent claims. See for example, Figs. 7, 8, 10, and 11, which are timing diagrams with overlapping simultaneously operating profiles. See also their descriptions, which teach transitioning. Thus, no time multiplexing is contemplated. Accordingly, the rejection is unsupported by the art and should be withdrawn.

In addition, *Shan* does not overcome the drawbacks suffered by *Li* in conjunction with the dependent claims. *Shan* discloses currents for operating electromagnetic coils for magnetic fields. *Shan* however does not disclose energy which is utilized for igniting and sustaining a plasma. Accordingly, the rejections are unsupported by the art and should be withdrawn.

Conclusion

The applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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